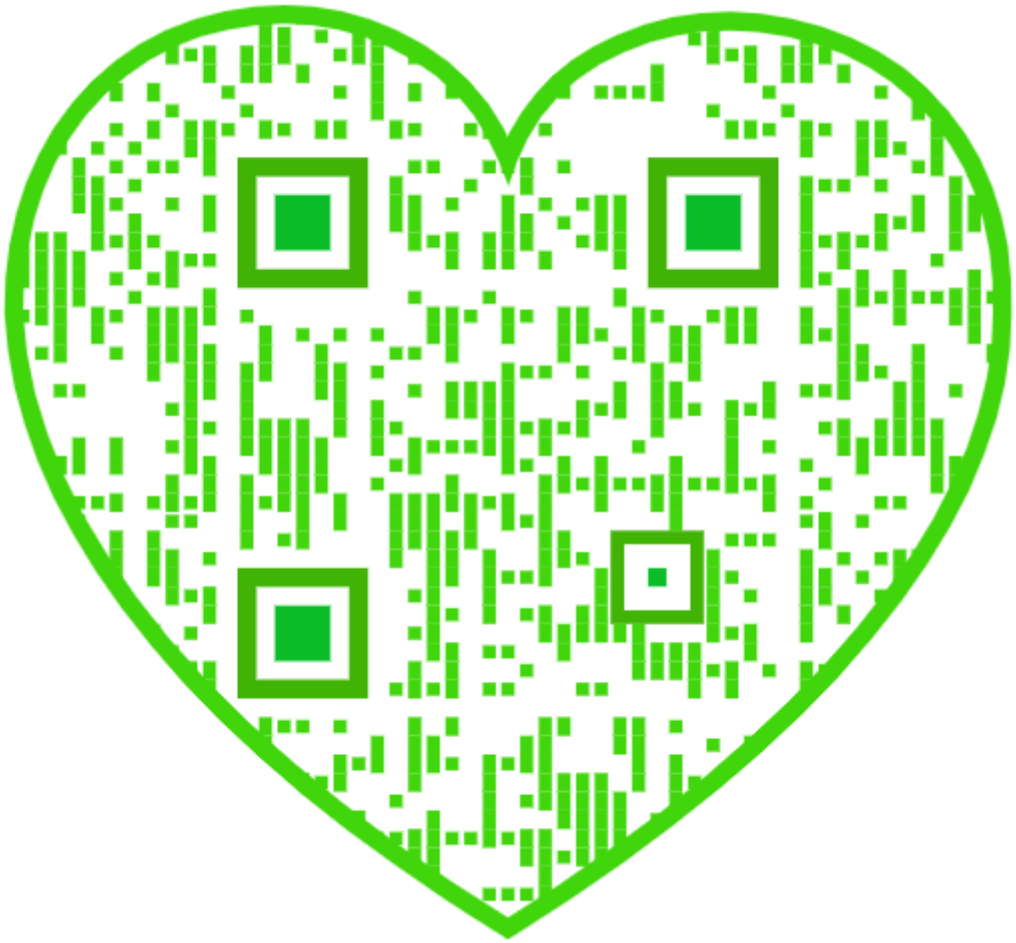

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The Tobacco Story

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L. Y. BALLENTINE COMMISSIONER

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INTRODUCTION

Tobacco, its history and the development of its culture, production and the manufacture of its products, are closely connected with the farming and industrial progress of North Carolina.

One of the chief industries in the State today is the tobacco industry. Thousands of our citizens: farmers, merchants, warehousemen and factory workers are dependent upon its culture, marketing and the manufacture and sale, not only in North Carolina, but all over the world.

The farmer and his family receive income, education, conveniences and better rural living from the culture of tobacco. About a half million people living in 94 of our 100 counties, divide 500 million dollars annually received from the tobacco crop. Workers in the manufacturing and processing plants receive more than 70 million dollars annually in gross wages. This part of the industry employs an average of 35,000 individuals, bringing higher living standards to more than 100,000 people, including the workers and their families.

To the wholesale and retail sales people, and their families, the handling of tobacco products means hundreds of thousands of dollars in income and purchasing power.

To the Federal government, tobacco is one of the richest sources of revenue. Tax collections on cigarettes manufactured in North Carolina amount to more than 700 million dollars annually, or more than 50 per cent of the tax received by the government from this source. Merchants and professional people also derive benefits from tobacco and tobacco products by participation in various phases of the thriving tobacco industry.

Tobacco is first mentioned in American History in the second voyage of Columbus to the New World in 1515. As Columbus approached shore he saw the natives smoking a long stick with a hollow end; he asked the natives what they were smoking. The reply was, "tobago," meaning the pipe. Since then the leaves smoked in the pipe have been referred to as, "tobago,", or today, tobacco.

On Columbus' return to Spain he carried some of the seed of the tobacco plant with him, and introduced the cultivation of tobacco to Europe.

It was believed that tobacco had medicinal value and its first use in Europe was as medicine, rather than for smoking. A famous doctor of that time said of tobacco, "as an ointment it has great healing powers."

The use of tobacco for smoking in Europe is credited to Jean Nicot, a Frenchman, who started its cultivation in the year 1561. John Rolfe is given credit for being the first farmer to raise tobacco commercially in the New World. He lived on the James River in Virginia. It was soon discovered that tobacco raised in America was superior in aroma and flavor to any other, and this has accounted for the great strides that have been made in the industry in the South.

During the first half of the nineteenth century tobacco was air-cured by hanging it in loosely built barns to allow the passage of air while curing. Later, fire curing became almost universal in the tobacco growing areas of North Carolina. This was short-lived, and many growers returned to air-curing.

Many stories are told about how flue-curing of tobacco started, but the most logical one is that an old slave was curing tobacco in the old manner by maintaining a wood fire on the ground in the barn. He fell asleep and the fire burned down to a few coals. The wood was too wet to catch readily, so the slave ran to a charcoal pit at the nearby blacksmith shop, got a sack of charcoal and put it on the fire. It caught readily and he continued to use it. He and his owner noticed that the tobacco was curing up a bright yellow. This curing process made the tobacco milder and produced a better smoke. From this beginning in Caswell County North Carolina in 1856, the present flue-curing and production methods have developed.

The manufacturing of tobacco products began to expand with the discovery of the flue-curing method. Chewing tobacco was the first product to be manufactured in a few small factories around 1850. Later a few factories manufactured granulated tobacco for "roll your own" cigarettes and pipes. However, the first real expansion of the industry was in 1884 with the invention of the cigarette making machine.

The production of flue-cured tobacco continued to expand in North Carolina until today tobacco growers in the State plant about 735,000 acres annually, or 67 per cent of the total grown in the United States. The planted acreage produces an average of 950,000,000 pounds of tobacco per year. Flue-cured tobacco has been developed to the point where it is used principally in the manufacture of cigarettes; about 95% is used for this purpose. The growth in the use of cigarettes accounts for the increased production of this type of tobacco.

There are five different types of tobacco grown in the United States. They are -

1. Flue-cured, used principally in cigarettes.
2. Burley, used in cigarettes, chewing and smoking.
3. Fire-cured, used in snuff and chewing.
4. Cigar filler and binders, used in cigars.
5. Cigar wrappers grown under shade for cigars.

If you will notice on any package of cigarettes, you will see the word "blended," which means that a certain amount of several types of tobacco are mixed together to make the filler for the cigarette. Flue-cured tobacco is the meat or body and mildness of the blend; burley tobacco is added for filler and burning qualities and Turkish for spice or aroma. Most cigarettes contain these tobaccos in different proportions, but in standard brands, the real secret of one blend differs from another lies in the flavoring or casing that is put on the tobacco in the blending process.

The principal flavoring used in the blending process are: Rum, Glycerin, Saccharine, Maple sugar, Brown sugar, Apple honey, White honey, and alcohol. So, if you prefer one brand of cigarettes to another, generally it is not the tobacco used so much as it is the flavor employed in the blending process. The usual proportions of tobacco used are -

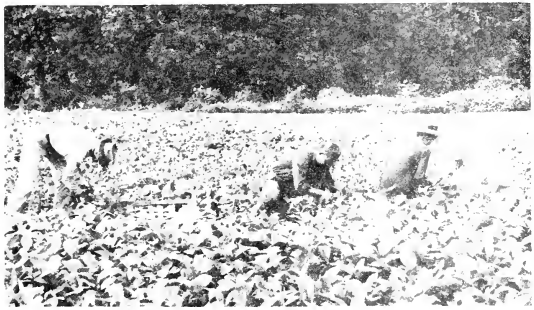
Flue-cured	50%
Burley	30- 40%
Maryland Burley	6- 10%
Turkish	6- 10%

Tobacco Plant Beds

The production of tobacco probably seems rather simple to people who have grown up with it, but to others the many steps and processes involved in producing, harvesting and marketing a crop of tobacco may not be quite so simple.

The first step in producing a crop of tobacco involves the preparation of a seed bed during the winter months for the tiny tobacco seed. The seed are so small that it takes 442,970 seeds to make one ounce, or three tablespoonfuls. If all the seed in one ounce should produce strong healthy plants, there would be enough plants

Tobacco seed bed covered with mesh cotton canvas to protect young seedling from cold.



Tobacco plants in the bed ready to be transplanted to the field.

to set approximately 64 acres of tobacco. Actually, many of these delicate seed will fall on rough ground and die, others will be killed by the cold weather and some plants will be killed by insects and disease. Therefore, the average grower usually sows about 1/3 of an ounce, or one tablespoonful of seed per 100 square yards of plant bed, and he usually prepares about 100 square yards of plant bed for each acre of tobacco he intends to plant so that he can be assured of having enough plants to set his crop.

The plant beds, which are sowed in different sections of North Carolina from December through the early part of March, are covered with mesh cotton canvas early in the spring before the seed sprout, to protect the seedling from the cold and frost. After danger of frost, the cover is removed and the seedlings are developed and toughened so that they can be transplanted to the field. It takes from 8 to 12 weeks from the time the seed are sown until the plants are ready to set.

Setting Tobacco

After strong healthy plants with good root systems are developed in the plant bed, they are then transplanted to the field. The transplanting of tobacco is usually started early in April in the Southeastern part of North Carolina and planting is continued in the Piedmont and Mountain sections of the State through the middle of June. The plants are set 14 to 24 inches apart in rows which are 3½ to 4 feet in width, and it takes from 6,000 to 9,000 plants to set an acre of tobacco, depending upon the spacing.

The process of transplanting tobacco is done in several different ways by different farmers over the State. Many of the larger tobacco growers use tractor drawn transplanters that will set two rows at the time, others use one row horse or tractor drawn planters, but most of the smaller growers use hand planters to set their crops. All of these transplanters, whether tractor or horse drawn, or hand planters, are equipped to supply water to each plant as it is set in the row. However, some farmers still follow the old back-breaking practice of setting tobacco with a short peg after a rain has wet the soil.

The average number acres of flue-cured tobacco planted in North Carolina each year ranges from about 650,000 to 750,000 acres, depending upon the adjustments made in quotas under the tobacco control program, which keeps the supply in line with demand.

Transplanting tobacco with a mule drawn planter.

D. H. HILL LIBRARY

Transplanting tobacco to the field with a hand planter.

growers of most crops to mechanize and do less hand work, but with tobacco, almost every step to improve quality has called for more instead of less hand labor. It takes approximately 440 man-hours of labor to produce, harvest and market an acre of tobacco, of which about 132 man-hours are accounted for in the harvesting.

The laborious job of harvesting flue-cured tobacco begins during the latter part of June in Southeastern North Carolina and continues through the middle of September in the Piedmont section of the State. In harvesting flue-cured tobacco, each leaf has to be primed individually as they mature and ripen. This is accomplished by priming the crop over each week, pulling 2 to 4 leaves from each plant every week, depending upon the ripeness of the leaves. As the leaves are primed, they are put in narrow sleds which are pulled between the rows. When a sled has been filled it is car-

Cultivation

Growing good tobacco is a highly specialized business which is guided largely through experience and research. Tobacco is a clean cultivated crop which requires a large amount of fertilizer, 800 to 2,000 pounds per acre, and much hard work. Cultivation of the crop is started soon after the plants are set in the field. The rows of tobacco are harrowed or plowed from 3 to 5 times, during the first 5 or 6 weeks after transplanting, to keep the grass and weeds down, and to loosen the soil and push it to the tobacco plants. The last plowing, known as "laying the crop by," is usually done about the time the plants are knee high.

A few weeks after the crop has been "laid by" the plants of tobacco begin to bloom. These blooms are broken out so that the top leaves on the plants will develop.

There are many insects and pests that prey on tobacco during the growing season, which must be kept under control or the crop of tobacco will be destroyed. Growers have to spray and dust their tobacco with poisons several times during the growing and harvesting season to keep these insects and pests under control.

Harvesting

Harvesting tobacco is one of the most laborious tasks that exists in North Carolina, and probably in the United States. Competition has forced

Tobacco fields are plowed to keep grass down and to push dirt to the plants.

A field of tobacco in full bloom ready to be topped.

In harvesting flue cured tobacco, 2 to 4 leaves are primed each week as they mature.

Crews of handers picking the leaves up in hands of 2 to 3 leaves and handing them to stringers who loop the hands of tobacco to a stick.

ried to the curing barn where a crew of two handers pick the leaves up in hands of 2 to 3 leaves and hand them to a stringer, who loops the hands of tobacco to a stick. The sticks of tobacco are either piled or hung in racks, later the sticks of tobacco are hung in the curing barn which are 5 to 7 tiers high.

There are 100,000 to 150,000 leaves in an acre of flue-cured tobacco, and all of these leaves have to be handled about 10 times during the harvest season. It usually takes 5 to 8 weeks to harvest a crop of flue-cured tobacco.

Curing Bright Tobacco

The process of curing a barn of tobacco to a rich golden color requires a skill which is developed only through years of experience. An average size barn will hold 600 to 800 sticks of tobacco which contain 60,000 to 80,000 leaves. A barn of tobacco has 7,000 to 8,000 pounds of water imbibed in the tiny cells of the leaves. Therefore, the main objective in curing tobacco is to eliminate the excess water from the leaves in such a way as to give the tobacco a bright golden color, and this is done by the use of artificial heat.

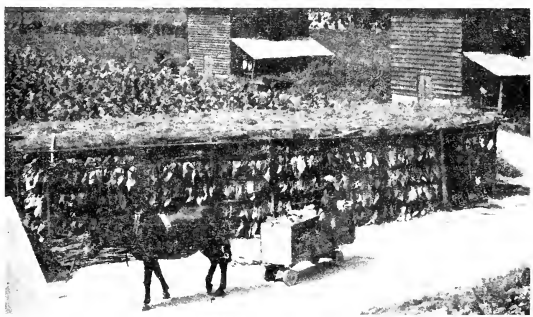
Artificial heat is supplied to tobacco barns in various ways. Some growers use the old conventional method of stoking a wood fired furnace 24 hours a day by hand. Other growers use automatic thermostatically controlled coal and oil burning stokers, but in recent years the majority of the growers in North Carolina have used manual controlled oil burning units which vary considerably with make, or brand name.

The process of curing flue-cured tobacco is divided into three phases. First is the yellowing period in which the green color in the leaves is changed to a golden yellow color. The next step is the color setting and leaf drying phase. Then comes the stem drying phase. It usually takes 65 to 75 hours to cure a barn of tobacco.

After a barn of tobacco has been cured, the doors are opened to allow the barn to cool. Then the tobacco, which is very porous, absorbs moisture from the night air which brings it into case or order, so that it can be removed from the barn without breaking and packed in a packhouse.

Sorting for Market

After curing, the tobacco is removed from the curing barn and stored in a packhouse until all of the crop has



A rack full of tobacco ready to be placed in the curing barns in the background.

Workers grading or sorting and bundling flue cured tobacco for market.

been harvested and cured. The next step is sorting the leaves into uniform grades for marketing. The procedure is to remove the leaves from the stick on which they were cured and to pick out the leaves that match in color, thickness and length. When twenty to twenty-five matching leaves are found, they are then tied into a "hand," or bundle at the "butt" or stem end with another leaf. This process is followed until the entire barn or curing has been sorted into matching grades. Usually there are three different grades to a curing, such as the best grade, medium grade and those leaves with green, or immature tobacco going into a low or common grade. These lots are kept separate and marketed as three different grades.

Selling Tobacco by Auction

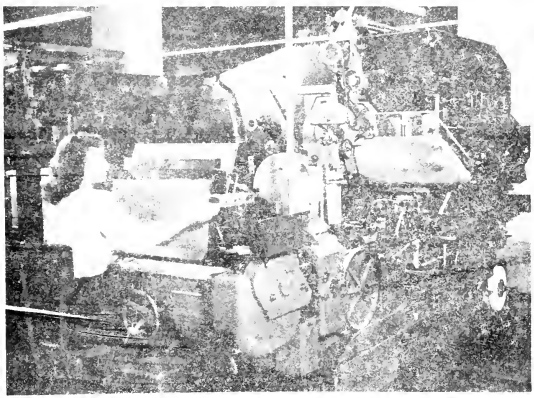
Tobacco is marketed under the auction system of selling. In North Carolina there are markets located in 47 towns throughout the State. Each local market has several auction sales warehouses for the farmers' convenience. Upon arrival at the market the grower has his tobacco unloaded by a warehouse employee and packed upon a wicker basket, about 38 inches square, according to the grade he sorted out at home. Each lot is then weighed by a weigh-master licensed by the State for weighing tobacco. The weigh-master places a ticket on each lot with the farmer's name, weight of the tobacco and basket number for identification. The tobacco is then placed on the warehouse floors in rows ready for the auction to begin.

The tobacco auction is unique in the sale of farm commodities, and an experience worthwhile to the uninitiated. Prior to the beginning of the sale a Federal tobacco grader inspects each lot of tobacco on the warehouse floor and places a U. S. Standard grade on it. The significance of this operation is that under a price support program each Federal grade is supported at 90 per cent of parity. If any lot placed on the floor by the grower does not bring a price in the auction sale above the support price, the Stabilization Corporation pays the grower the support price established for that particular grade, and then the tobacco is taken over by the Stabilization Corporation for future sale.

The actual auction sale is participated in by buyers representing domestic and foreign companies. At the beginning of the auction the buyers line

A tobacco auction sale in process. In the foreground a Federal tobacco inspector can be seen putting a standard grade on each lot of tobacco before it is sold.

Tobacco buyers signifying their bids by winks, signs or sounds.



A modern cigarette making machine capable of making 12 to 15 hundred cigarettes per minute.

up on one side of the row of tobacco directly across the row from the warehousemen, the auctioneer, and a ticket marker. The warehouseman starts the auction with the first bid, based on his judgment of the market price of each lot according to quality. However, like any article being sold at auction, the buyers have different ideas of the value. At this point the auctioneer cries the warehouseman's bid and buyers take over, signifying their bids in various ways: by winks, signs or sounds, until in the judgment of the auctioneer, the lot of tobacco has brought the top dollar. The auctioneer then names the buyer and the price paid for the lot sold. This procedure continues at a rate of 300 to 400 piles per hour until the warehouse has sold its allotted number of piles for the day.

As the auction sale goes along, directly behind the sale, comes the book and clip men. These two are rapid calculators, who figure the number of pounds by the price paid by the buyer and have the complete transaction figured for the buyer and seller within a matter of seconds.

Every buyer has a crew following the sale to pick up his purchases and place them together according to the grade. Each grade of the buyer is placed together for movement to a redrying plant.

Redryed tobacco being packed in a hogshead by hydraulic press.

Redrying for Storage

Although tobacco has been cured before it is sold, it still has to be redried before it is stored for aging. As tobacco is sold on the warehouse floors it is in the "raw" stage, that is, it contains too much moisture to pack into "hogsheads" for the aging process. This excess moisture must be removed and a predetermined amount of moisture left in to insure proper aging for the manufactured product. To remove the excess moisture the tobacco is run through a redrying machine. This machine is similar to a large oven through which the tobacco passes, removing all moisture. Then it passes into a live steam chamber where the exact amount of moisture is replaced. The tobacco is then packed into "hogsheads" or large casts, weighing about 900 to 1,000 pounds, and pressed tightly by hydraulic press. These hogsheads are then ready for storage and aging. Tobacco usually is left in

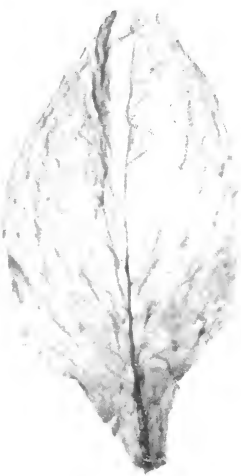
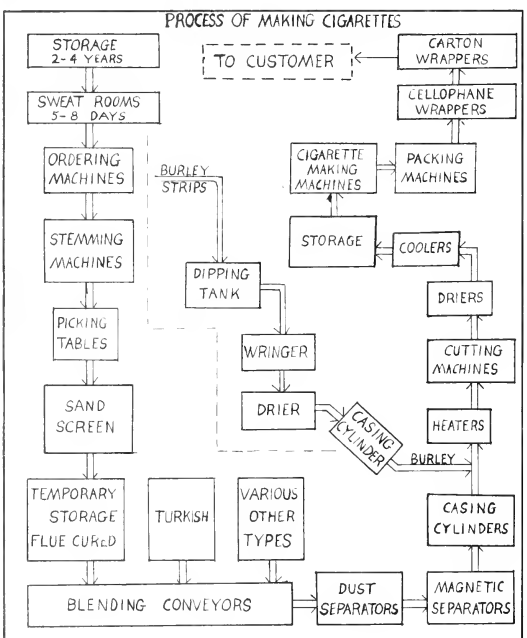
The process of cigarette making, packaging, and placing the packs in cartons ready for the consumer.

storage from two to three years. During the aging period the tobacco sweats or goes through a slight fermentation which mellows the flavor for use in the finished product.

Manufacturing Process

Cigarettes are by far the leading manufactured tobacco product in this Country. The production of cigarettes utilizes about 95 per cent of the crop of flue-cured tobacco in making more than 400 billion cigarettes annually. If all of this 400 billion cigarettes were laid end to end around the world at the equator, there would be enough to reach around the world more than 700 times. This is an average of about 2,500 cigarettes for every man, woman and child in the United States annually.

The modern cigarette machines will make 1,200 to 1,500 cigarettes per minute. The following diagram outlines the general process of making cigarettes.



A nearly perfect leaf of golden flue-cured tobacco of the very best cigarette quality. This leaf, known as a cutter, will be cut into fine threads with a machine that will make 60 to 100 cuts per inch of leaf. Cigarette tobacco is threaded to keep it from falling out the open ends of the cigarette.